

# Spaced Mobile Learning a New Model for Mobile Learning

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View PowerPoint Slides (Spaced Learning):
<a href="http://www.instancy.com/Webinar/Spaced\_Mobile\_Learning.aspx">http://www.instancy.com/Webinar/Spaced\_Mobile\_Learning.aspx</a>



# Spaced Mobile Learning - a New Model for Mobile Learning [AGENDA]



What is Spaced Learning?

What are the Benefits of Spaced Learning?

**Research Studies to Show Spaced Learning Works** 

**Spaced Learning Design** 

**Mobile Spaced Learning Design** 

**Mobile Spaced Learning Architecture** 

Mobile Spaced Learning Interface & Implementation

# What is Spaced Learning?



Attempt to make learning more effective



**Extending the Learning Time Line** 

**Examples: Blended Learning, Flipped Classroom** 

# **Flipped Classroom**



## THE RESULTS

#### **BEFORE THE FLIP**

+50%
of freshmen
failed English

44% of freshmen failed math

736 discipline cases in one semester

#### AFTER THE FLIP



of freshmen failed English

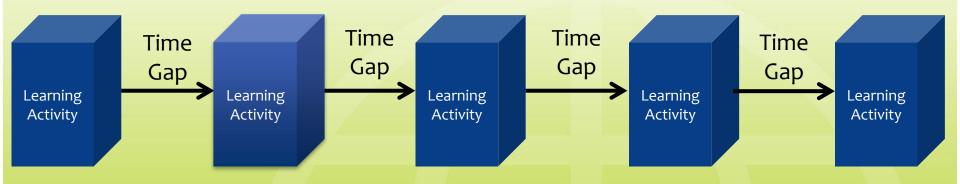


of freshmen failed math

249 discipline cases in one semester



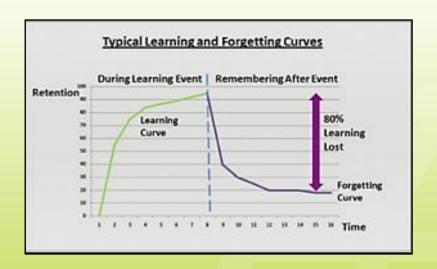




- > Spaced learning can be done in the classroom
- Spaced learning is easier to do with the help of technology Particularly Mobile technology and Push Notifications

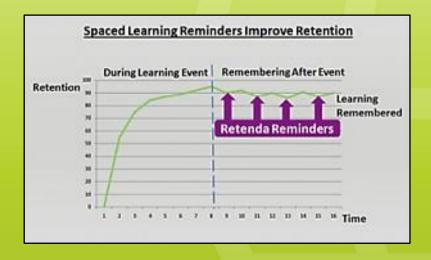
# Typical Learning Vs. Spaced Learning





#### The Theory of Disuse

- After we learn a piece of information we start to forget it.
- The longer we leave it, the more likely it is that the memory 'decays' and we forget.



## **Retention Through Repetition**

➤ If we revisit this information at regular intervals we are much more likely to remember it.

Ref: http://learningspy.co.uk/2013/06/10/deliberately-difficult-focussing-on-learning-rather-than-progress/

#### Some Facts to Ponder



- > The human brain consists of about one billion neurons.
- Each neuron forms about 1,000 connections to other neurons, amounting to more than a trillion connections.
- ➤ Human brain can store memory equivalent to 3 million hours of TV shows. Considering human life Expectancy, it is arguably impossible to run out of memory. So why do we forget things?
- ➤ In 1885, German psychologist, Hermann Ebbinghaus tested the strength of a memory. He realized that there is an exponential loss of memory as the duration of time increases. This is displayed in what is known today as the Forgetting Curve.

# **Research on Spaced Learning**



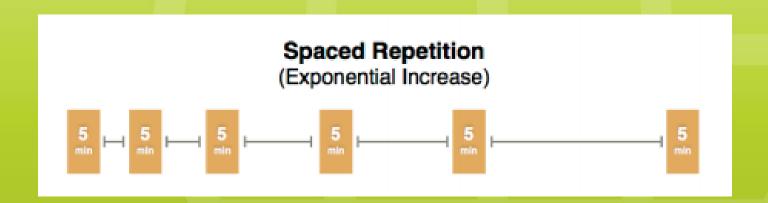
Individuals more easily learn information when studied a few times over an extended period of time as compared to when studied repeatedly for a short time.



# **Research on Spaced Repetition**



- Over 800 experiments were performed to determine the efficiency and effectiveness of spaced repetition
- Researchers saw that spaced repetition increased long term retention in individuals by 200%.
- ➤ But the most fascinating finding from these experiments revealed that there was an "optimal time" to review information to exponentially extend the life of the memory into the future, decreasing the amount of times that review needs to occur. That optimal time is just before the forgetting phase.



# Research Studies to Show that Spaced Learning Works - 1



In a simulated pilot-training experiment, Shebilske, Goettl, Corrington, and Day (1999) found that

learners who had two learning opportunities spaced at ten days outperformed those who had them spaced at two days by 49% on immediate tests of retention and 42% on tests that were delayed one week.



Ref: http://www.phase-6.com/system/galleries/download/lernsoftware/Spacing Learning Over Time March2009v1 .pdf

# Research Studies to Show that Spaced Learning Works



Singh, Mishra, Bendapudi, and Linville (1994) found that television commercials that were repeated after four intervening commercials (spaced) produced better memory the following day than commercials that were repeated with only one intervening commercial (less-spaced) by 18% for younger adults and 160% for older adults.



Repeat after four intervening commercials

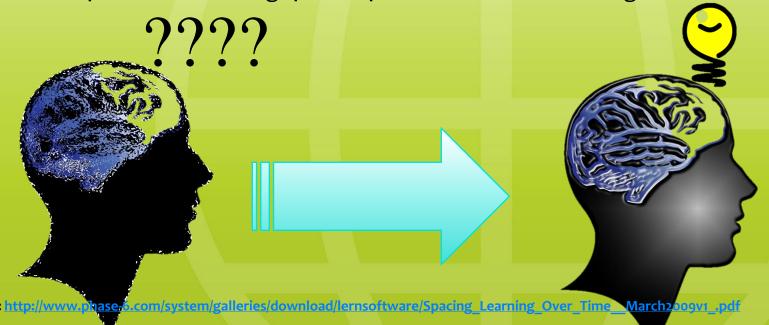


# What is Spaced Learning?



- Spacing repetitions of learning over a period of time with gap or space in between each repetition
- Repeated stimulation of the same neural pathway to promote the ability to retrieve the information
- Constant or long duration of stimulation is not helpful
- Allow learners to engage at a deeper level with the learning materials

> The power is in the 'gap' or 'space' between learning sessions



# What are the Benefits of Spaced Learning?



- Spacing helps minimize forgetting and boost long term remembering
- Spaced repetitions can be beneficial in making ideas more persuasive
- Improving learning effectiveness by facilitating the application of learning to the job-tasks

# **Spaced Learning Design**



The key to long-term memory formation is not the amount of time spent learning, but the amount of time between learning

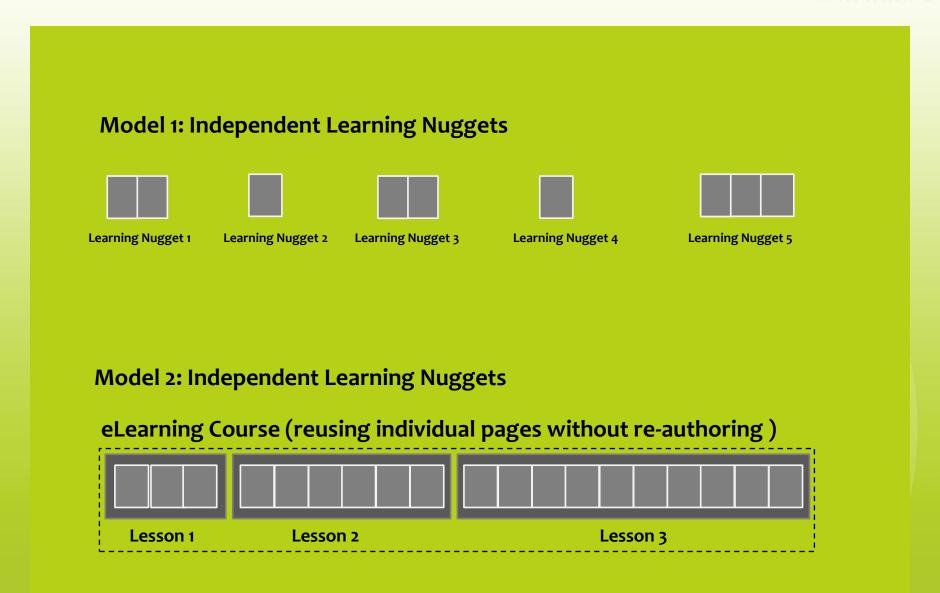
- ➤ Each learning session should present the same learning content in a different way
- During the gap involve different part of the brain (do activities unrelated to primary learning activity/content)
- Present a learning session just before the forgetting stage; the ideal spacing interval should be roughly equal to the retention interval

# **Suggested Spaced Learning Design Model**

- Present ('Tell me/Show me')
- Recall content presented with some missing information ('Let me')
- > Understand (apply knowledge/skill and problem solving); 'Test me'

# **Designing Learning Nuggets for Spaced Learning**





# **Mobile Spaced Learning Design**

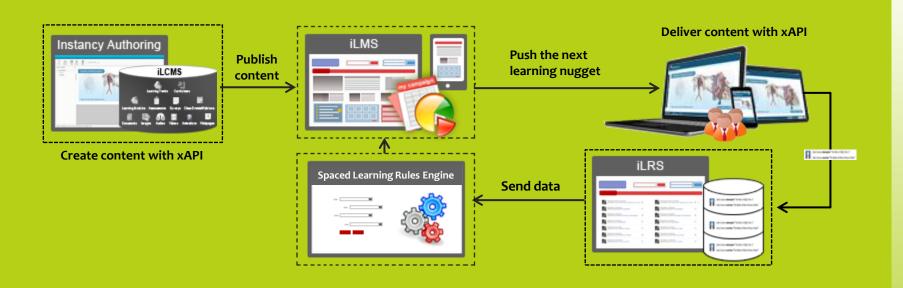


Mobile Spaced Learning could supplement classroom, virtual classroom or web-based eLearning course or Mobile Spaced Learning can offer the content + repetition entirely in a mobile environment

- Make content chunks small
- > Include multiple content types and vary content with each repetition
  - Multimedia learning modules
  - Assessments
  - Documents
  - > Performance Support
  - ➤ Video/Audio
- > Can use specific screens/pages within a learning module or assessment
- Repeat content until successful completion (example, learner needs to answer the same question two times in row before the question is eliminated)
- > Make content chunks searchable
- Allow learners to select spacing/timing
- ➤ Gamification: Create a sense of competition among learners

# **Spaced Learning Architecture**





## Server-side (LMS, LCMS, LRS)

- Content Server/Content Delivery Server Learning Object Repository (Author Role)
- User management, reports and analytics (Admin Role)
- Auto Responder/Push Notifications and Spaced Learning Rules Engine

#### **Mobile Client-side**

- Mobile Learning App
- Push Notification
- View content
- Fire Experience API Statements
- View personal progress

# **Mobile Spaced Learning Implementation**



- ➤ Step 1: Create Content/Learning Object Repository
- > Step 2: Set spaced learning parameters and Rules
- Step 3: Assign content to learners and enable learners to change spacing
- Step 4: Learner can track their own progress and complete
- Step 5: View dashboards and Learner progress reports

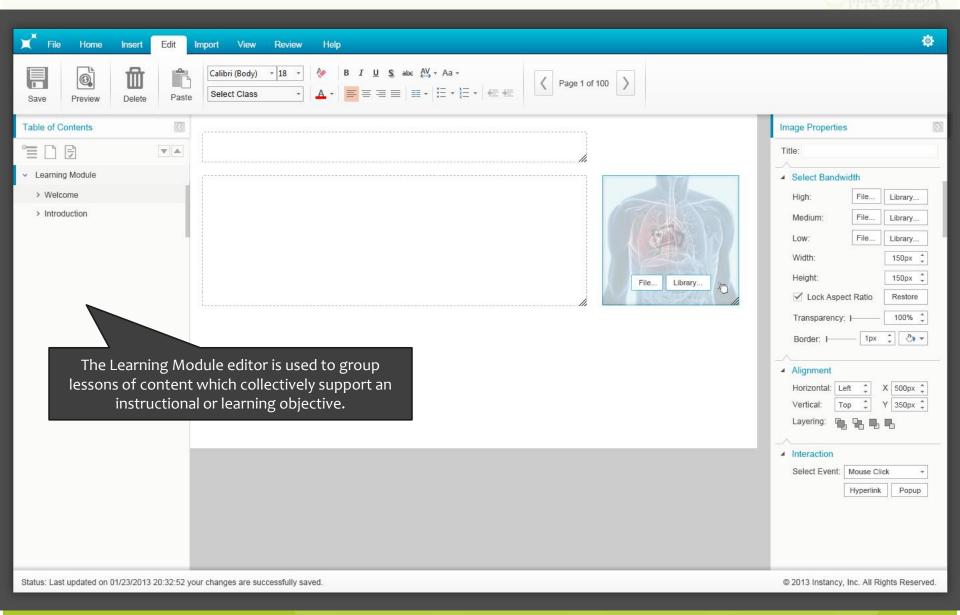


# **Step 1: Create Content**



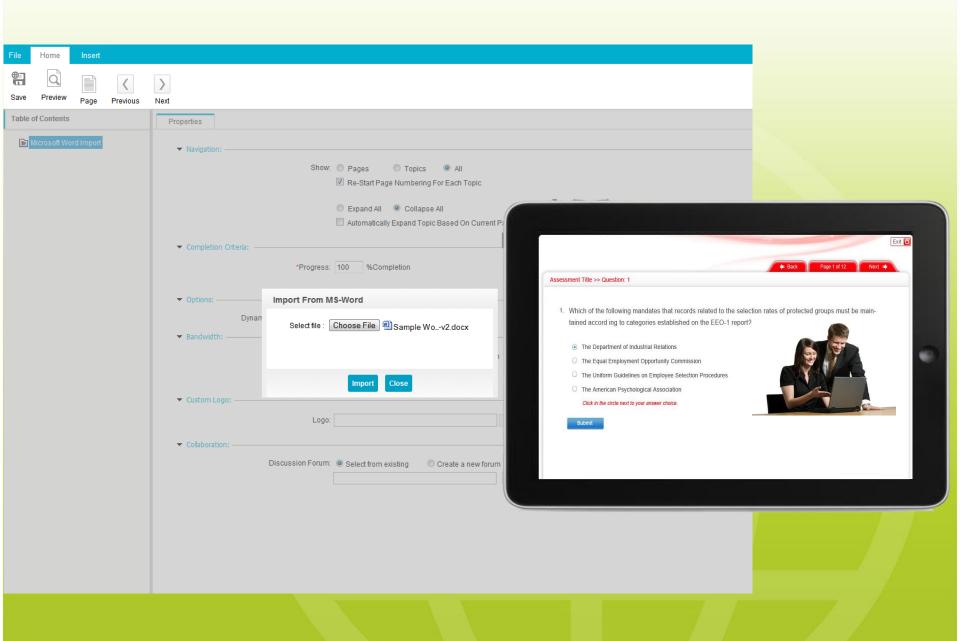
# **Built-in Authoring tool – Learning Module Editor**





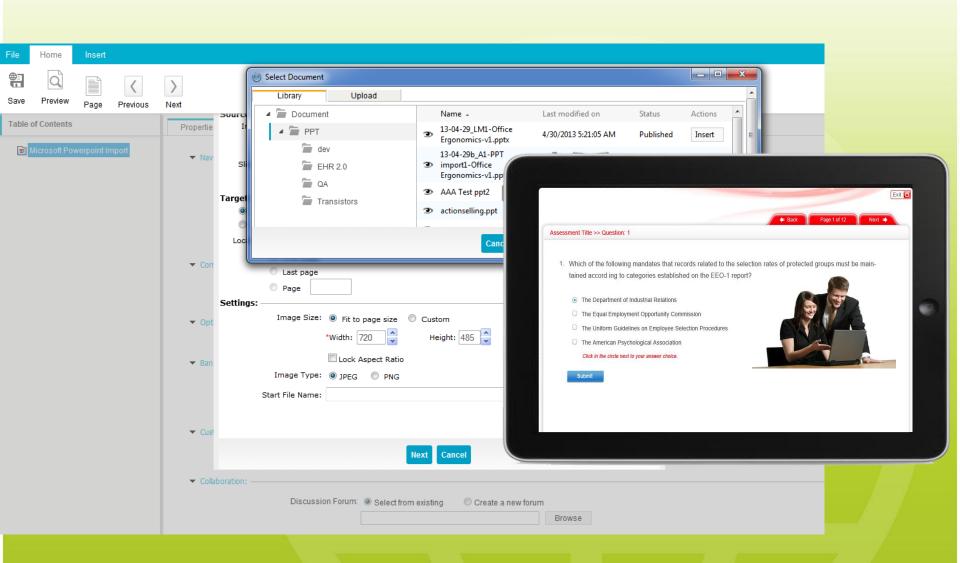
## **Instancy MS Word to eLearning Conversion Tool**





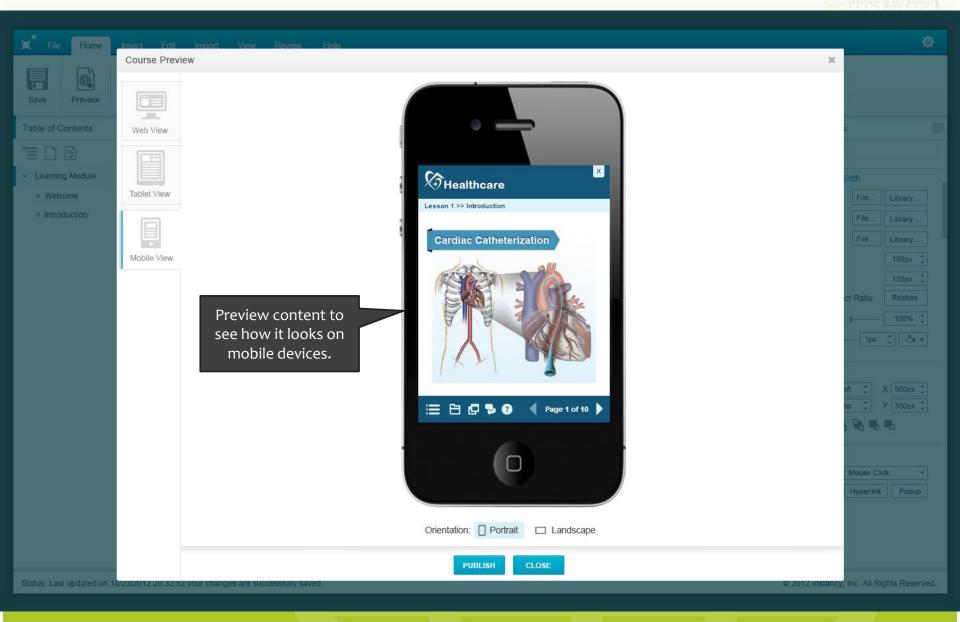
## **Instancy MS PowerPoint to eLearning Conversion Tool**





# **Preview Content – Mobile Output**

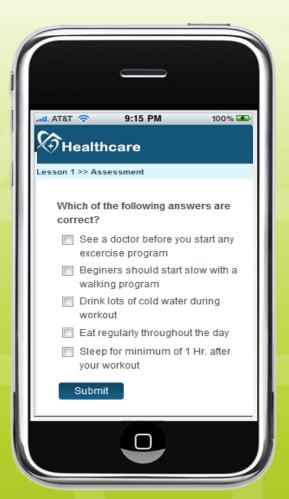




# **Mobile Learning – Output**



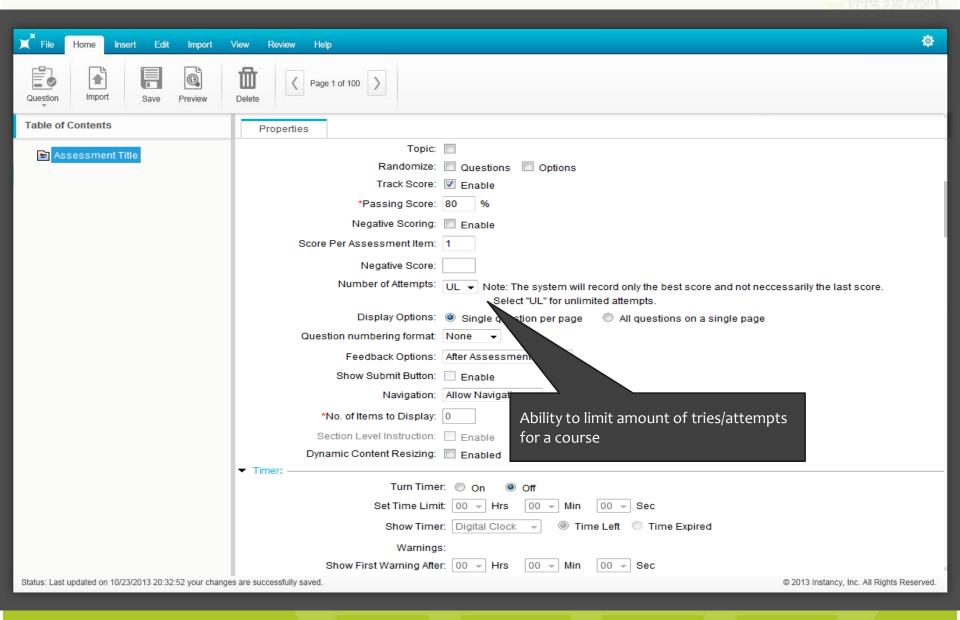






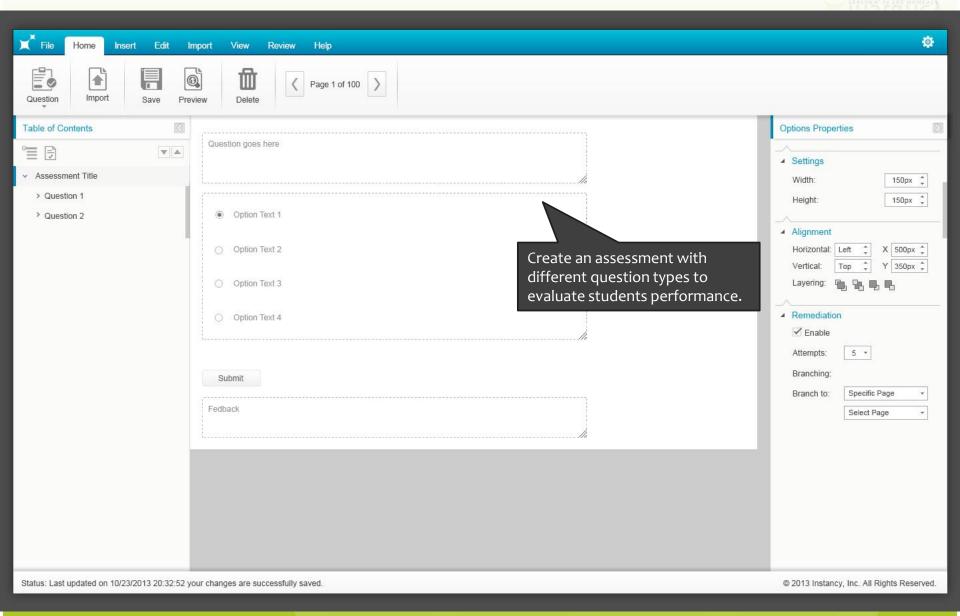
# **Built-in Authoring tool – Assessment Editor**





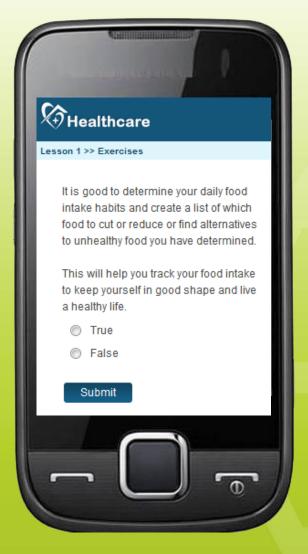
# **Built-in Authoring tool – Assessment Editor**

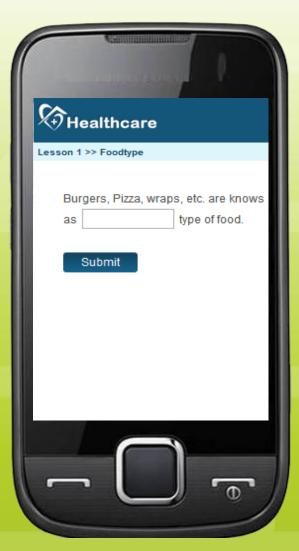




# Mobile assessment – Output









# **Mobile Performance Support**



#### Service States

If the setup in this article doesn't match your equipment, there are other setups available that allow you to watch one program while recording another. To view these setups, go to:

- To record one channel while watching another with a VCR and cable box, go to <u>Watch One Channel, Record Another (w/Cable Box and VCR)</u>.
- To record one channel while watching another without a cable box, go to <u>Watch One Channel, Record Anol</u> (No Cable Box).
- To record one channel while watching another with a VCR and no cable box, go to <u>Watch One Channel, Re</u> Another (No Cable Box, Include VCR).

The setup information in this article applies to any TiVo Digital Video Recorder (DVR). The illustrations show are specific to the Series2 DVR manufactured by TiVo (see alternate Series2 back panel), but can be adapted if you using a different DVR. This setup is only for use with a cable box. It will not work for a satellite box because the satellite signal is not analog and cannot be split.

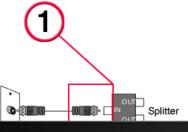
- . To control the power and volume, and mute on your TV: Select Part 1: TV power, volume, and mute.
- . To control the volume and mute on your A/V Stereo: Select Part 2: A/V volume and mute.
- To control the input setting on your TV: Select Part 3: TV Input.

Because the signal is being split before the cable box, you will only be able to watch analog channels (gener 0-99) on the cable connected directly to the TV, but can record any channel on the cable being sent through the cabox and DVR.

To use this configuration with your TiVo Digital Video Recorder, perform the following steps:

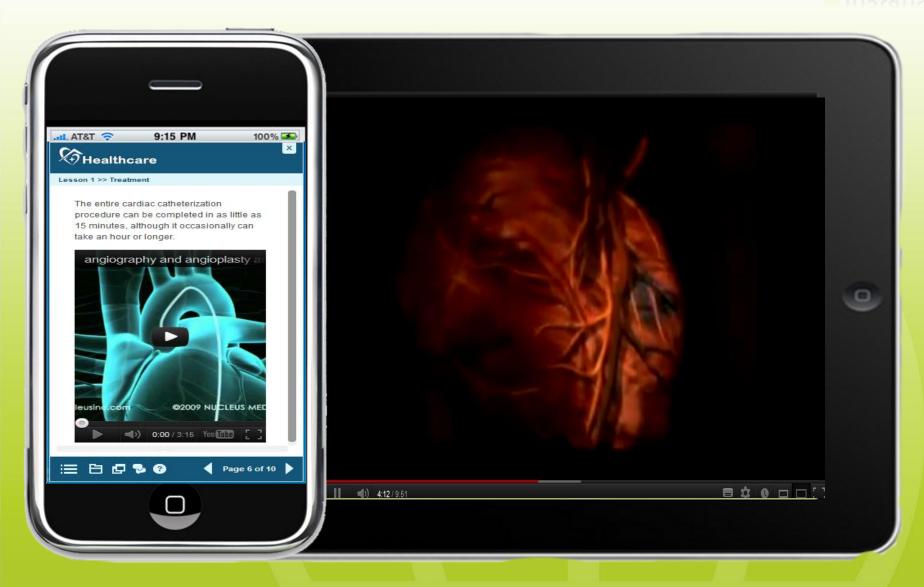


Attach the RF splitter (not included) to the RF coaxial cable coming from the wall.



# Video or eLearning modules – content type

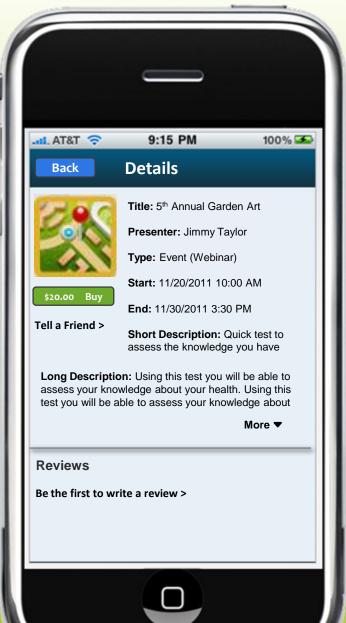




# **Event listing**







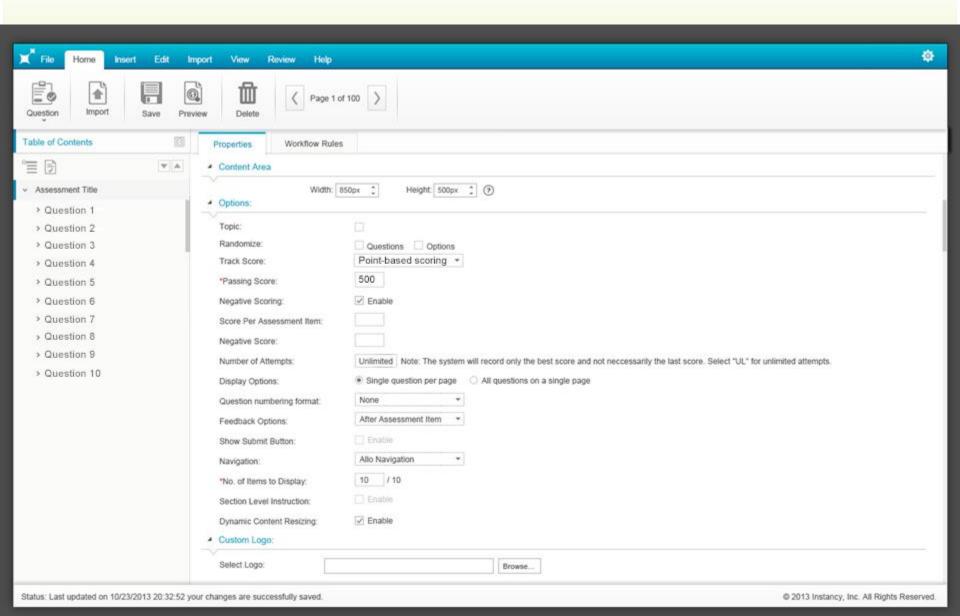


# **Step 2: Set spaced learning parameters**



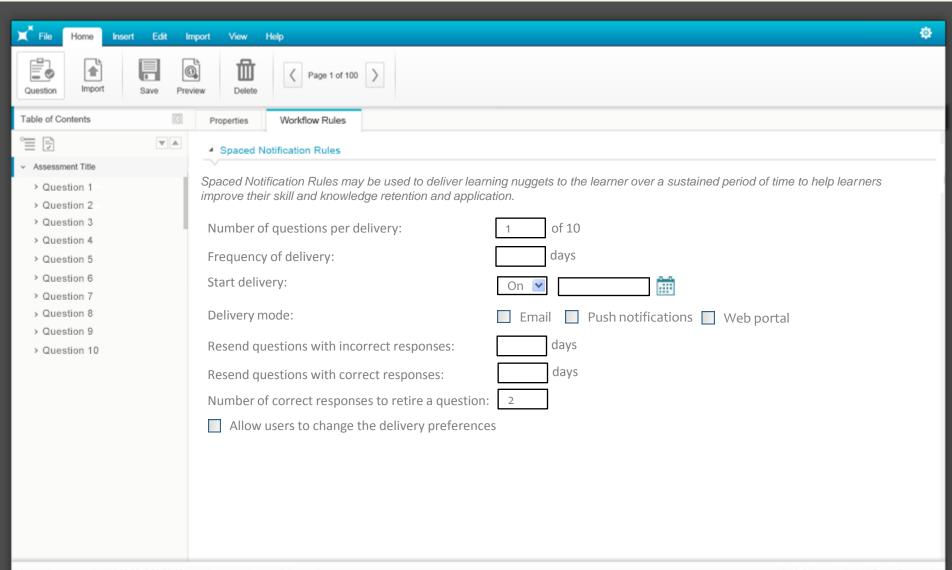
# **Editor Settings**





# **Spaced Options in Editor**





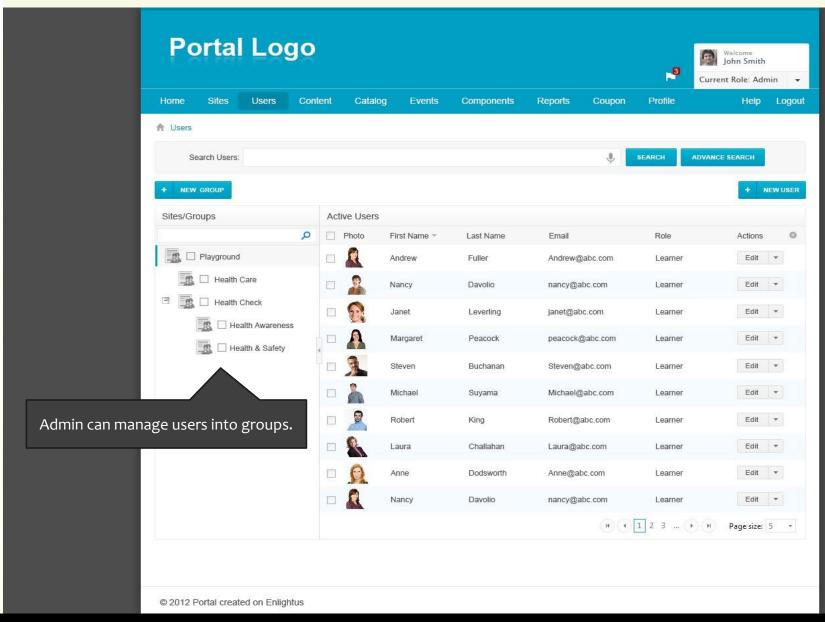


Step 3: Assign content to learners and enable learners to change the spacing



#### **Manage Users**

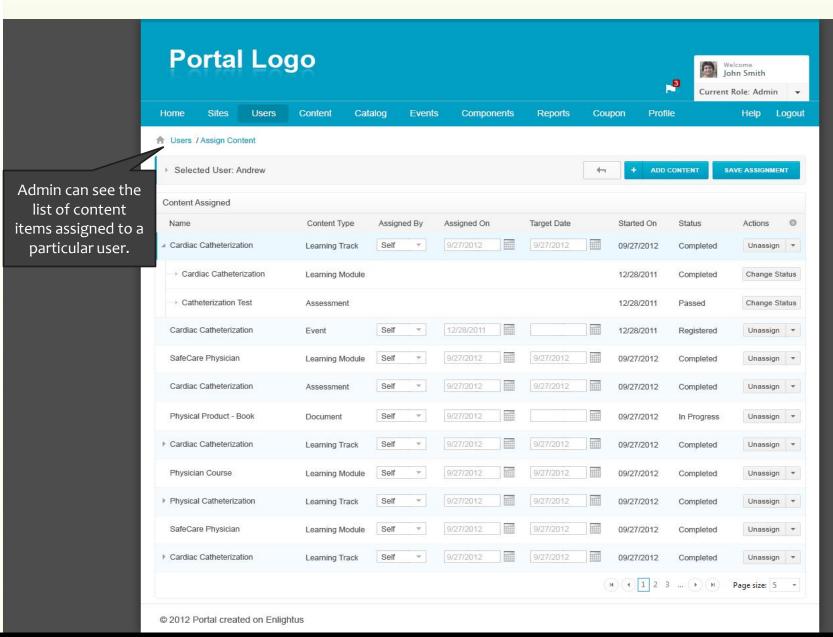




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#### **View Assigned Content of a User**

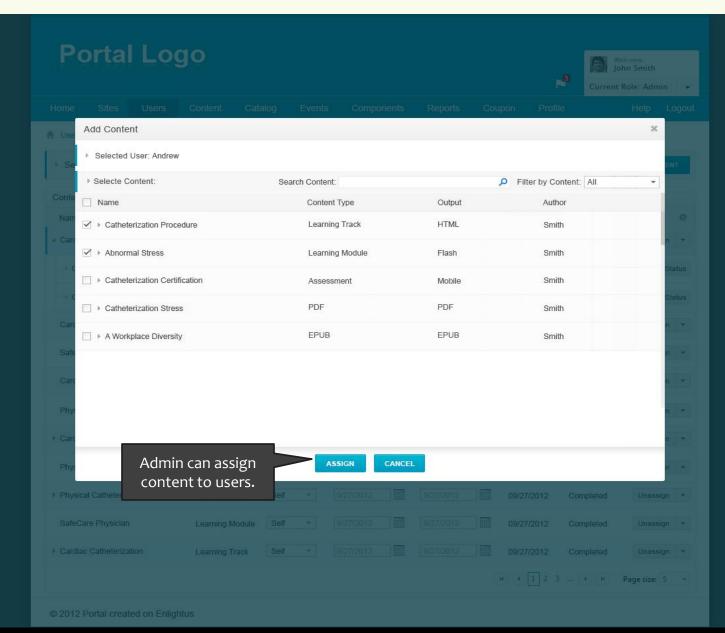




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#### **Assign Content to User**





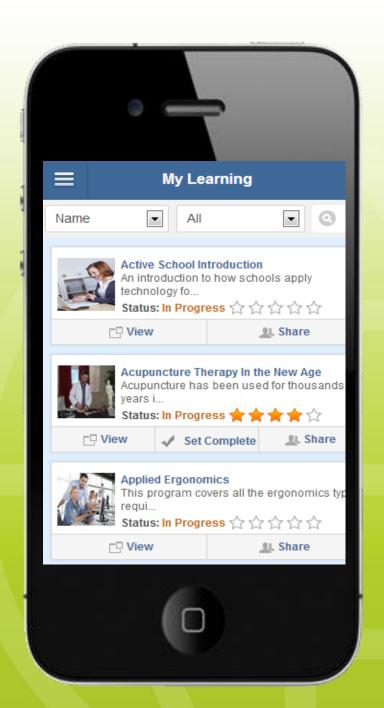
## **Mobile Spaced Learning - Notification**





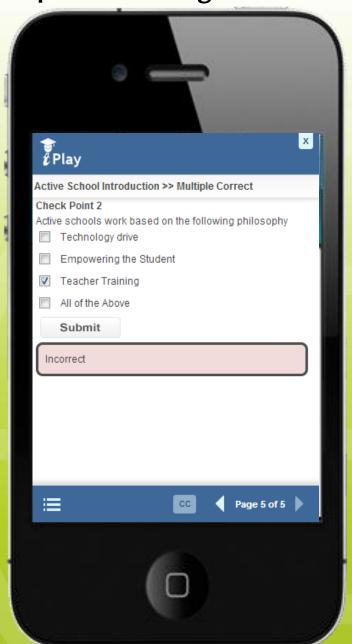
## **My Learning**





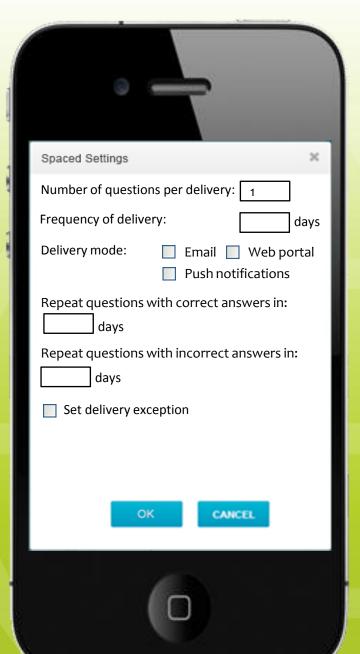
**View eLearning Content – Spaced Learning Based** 





Mobile Spaced Learning Settings – Learners' Ability to Change

**Spacing** 



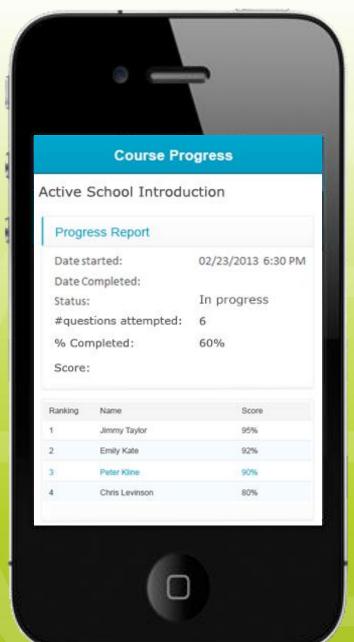


**Step 4: Learner can track their own progress and complete** (Gamification of Spaced Learning)



**View Progress and Compare Score with Other Learners** 





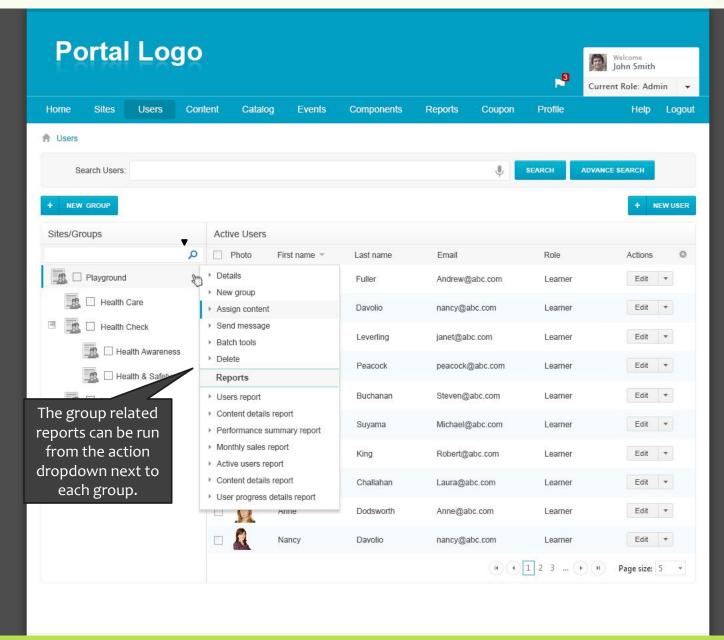


**Step 5: View dashboards and Learner progress reports** 



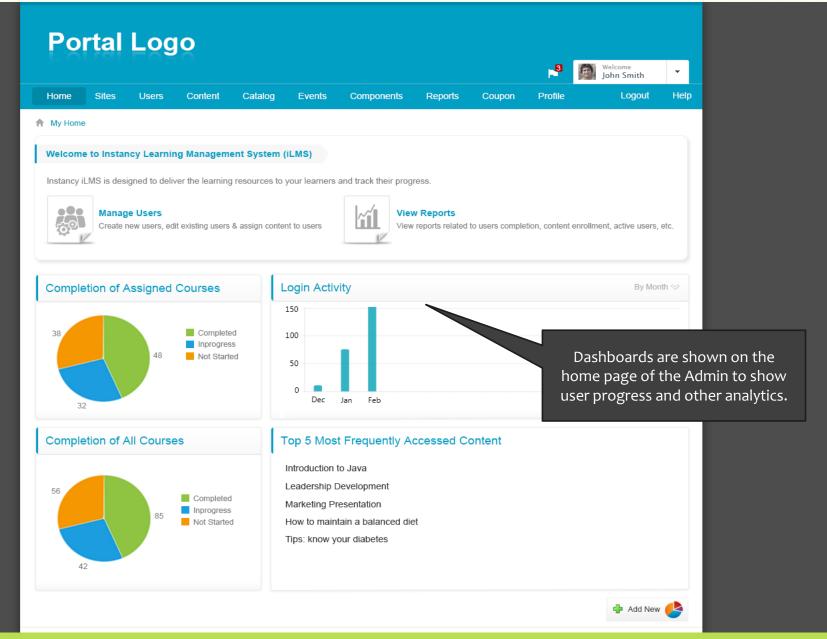
### **Standard Reporting Capability**





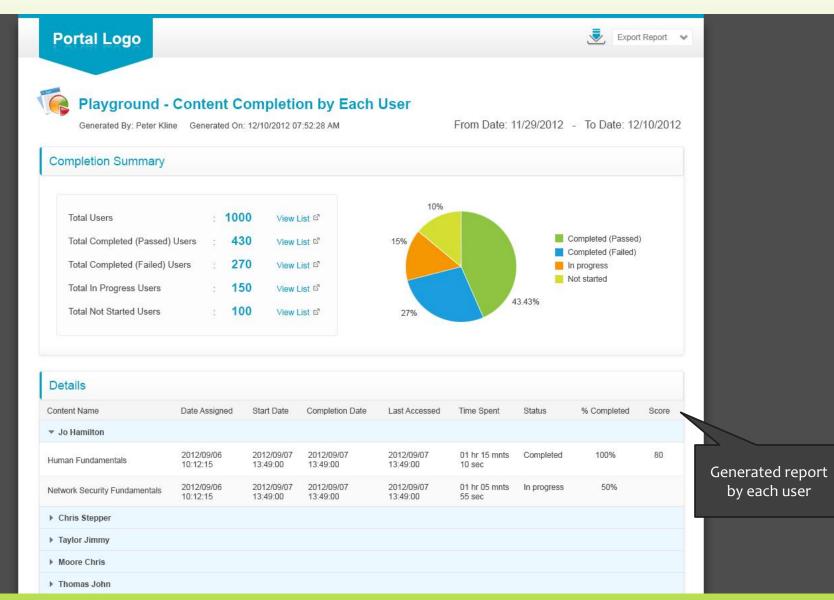
#### **Analytics Report on Admin Dashboard**





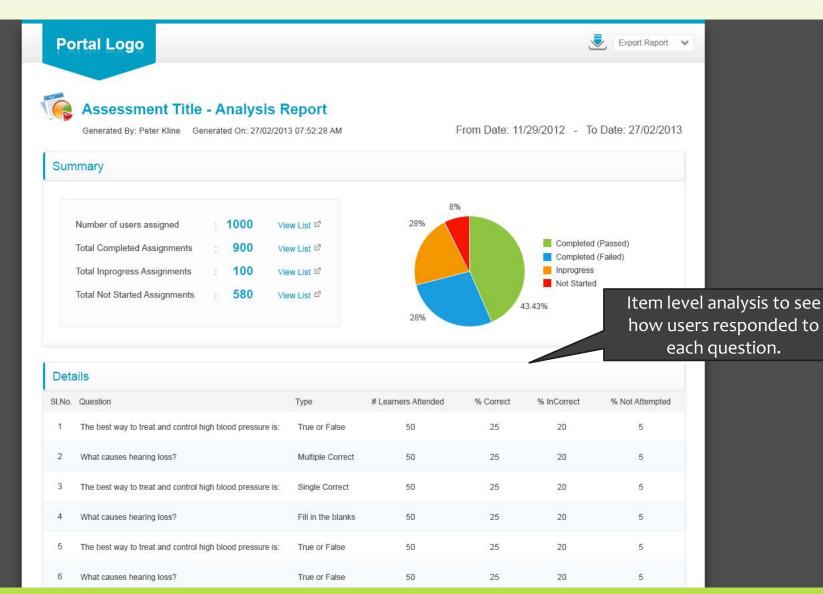
#### **Completion Report – By User**





#### **Assessment Analysis Report – Question Level Analysis**





#### **Summary and Future Considerations**



- ➤ Adaptive Learning / Personalized Spaced Learning
- Blending Spaced Learning with Job-Task/Work-Performance
- Smarter Spaced Leaning Delivery Engines
  - Automated adjustment in the spacing
  - > Automated adjustment in the number of repetitions
- Advanced Analytics
  - Co-relate learning with job performance
  - Predictive analytics

# For Spaced Learning Key Points



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View PowerPoint Slides:

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